

CLAIMS:

1. A miter saw comprising:

a base assembly defining a cutting zone;

5 a first linkage assembly pivotally coupled to the base assembly;

a second linkage assembly pivotally coupled to the base assembly;

a housing having at least a first region pivotally coupled to the first linkage assembly and
at least a second region pivotally coupled to the second linkage assembly, where the first and
second linkage assemblies couple the housing to the base so that the housing may be moved
10 toward and away from the cutting zone;

a motor mounted on the housing; and

15 a rotatable blade coupled to be driven by the motor to cut workpieces within the cutting
zone when the housing is pivoted toward the cutting zone.

2. The miter saw of claim 1, where the first and second regions of the housing are
arranged so that the second linkage assembly remains generally parallel to the first linkage
assembly when the housing is moved toward and away from the cutting zone.

20 3. The miter saw of claim 1, where the first and second linkages are coupled to the
housing and the base assembly so that the housing maintains a generally constant orientation
relative to the base assembly as the housing is moved toward and away from the cutting zone.

4. The miter saw of claim 1, further comprising a detection system configured to detect one or more dangerous conditions between a person and the blade, and a reaction system configured to take one or more predetermined actions in the event a dangerous condition is detected by the detection system.

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5. The miter saw of claim 4, where the one or more dangerous conditions includes accidental contact between a person and the blade.

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6. The miter saw of claim 5, where the one or more predetermined actions includes stopping rotation of the blade.

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7. The miter saw of claim 4, where the one or more predetermined actions includes stopping rotation of the blade.

8. The miter saw of claim 4, where the one or more predetermined actions includes

20 stopping movement of the housing toward the cutting zone.

9. The miter saw of claim 4, where the one or more predetermined actions includes moving the housing in a direction away from the cutting zone.

5 10. The miter saw of claim 4, where the reaction system configured to take one or more predetermined actions includes at least one brake member configured to engage and stop rotation of the blade in the event a dangerous condition is detected by the detection system.

10 11. The miter saw of claim 10, where the blade has an angular momentum when rotated, and where the brake member is coupled to the first linkage assembly so that at least a portion of the angular momentum of the blade is transferred to the first linkage assembly when the brake member engages the blade.

15 12. The miter saw of claim 10, where the brake member is configured to revolve about the blade as the housing is moved toward and away from the cutting zone.

13. The miter saw of claim 12, where the housing includes one or more arcuate channels, and where the reaction system includes one or more pins disposed to slide within the one or more arcuate channels, and where the brake member is coupled to the one or more pins.

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14. A miter saw comprising:

a base assembly defining a cutting zone;

a housing coupled to the base assembly to move toward and away from the cutting zone;

a rotatable blade mounted at least partially within the housing and configured to cut workpieces within the cutting zone when the housing is moved toward the cutting zone; and

a motor coupled to drive the blade;

a safety system including at least one brake member configured to selectively engage and stop the rotation of the blade upon the occurrence of one or more predetermined events, where the brake member is coupled to move in an arcuate path that is generally concentric with the blade as the housing is moved toward and away from the cutting zone.

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15. The miter saw of claim 14, where the housing includes one or more arcuate channels, and where the brake member is coupled to move along the one or more arcuate channels.

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16. The miter saw of claim 15, where the safety system includes at least one pin disposed to slide within the one or more arcuate channels, and where the brake member is mounted on the pin.

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17. The miter saw of claim 14, further comprising at least one linkage assembly to couple the brake member to the housing.

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18. The miter saw of claim 17, where the linkage assembly is configured to move the brake member in a generally clockwise direction about the blade when the housing is moved in a generally counter-clockwise direction about the base assembly.

20 19. The miter saw of claim 14, where the brake member is coupled to maintain a substantially constant orientation relative to the blade as the brake member moves in the arcuate path.

20. A miter saw comprising:

a base assembly defining a cutting zone;

a pivot arm assembly pivotally coupled to the base assembly and pivotal toward and away from the cutting zone;

5 a circular blade supported by the pivot arm assembly and configured to cut workpieces within the cutting zone when the pivot arm assembly is pivoted toward the cutting zone;

a motor configured to rotate the blade; and

10 a safety system configured to stop the rotation of the blade upon the occurrence of one or more dangerous conditions between a person and the blade, where the safety system includes at least one brake member configured to brake the blade;

where the safety system includes means for moving the brake member around the perimeter of the blade in the direction of the blade rotation when the pivot arm assembly is pivoted away from the cutting zone, and in the direction opposite the blade rotation when the pivot arm assembly is pivoted toward the cutting zone.